Technology for Alaskan Transportation

Fall 1990-Volume 15(3)
Alaska Transportation Technology Transfer Program

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INSERTS . . .

SPECIAL ISSUE . . .

ALASKA TRANSPORTATION TECHNOLOGY TRANSFER

This newsletter is funded by a grant from the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities.

Highway Sign Vandalism

"If only I could catch one of those so-&-so's..." we mutter as we drive past another moose crossing sign that's been shot up. It's an irritation, a frustration, but it can get a lot more serious than that. Signs regulate, warn, and guide us; when they're unreadable or missing, accidents can happen. People have been hurt, some killed, and road agencies have been sued for millions of dollars because someone wanted a stop sign for a room decoration.

America's $20 billion investment in signs needs annual maintenance, and that can gobble 20 percent or more of a state's maintenance budget. Sign vandalism accounts for a large part of that. Anchorage alone topped the $100,000 mark for sign vandalism costs in 1980.

Who vandalizes signs? Nine times out of ten, apprehended vandals generally are young males, and studies suggest a similar profile for sign vandals. Alaska is especially prone to this problem because it has a younger than average population, an above average percentage of military personnel (predominantly young and male), and a high percentage of hunters.

There are other patterns to the problem. Mutilation—painting, sticking decals, egging, graffiti—is more common in urban areas, especially near schools, colleges, and areas of high pedestrian activity. Holiday periods (particularly Halloween) and political campaigns are peak times. Destruction—gunshot, rocks, fire, bending, twisting—is more a rural problem, in areas away from lights and telltale eyes. Gunfire, the most common of these, peaks in hunting season, while bending and twisting often show up after sporting events.

(continued on page 2)

Culverts In Good Condition?

Batten down the hatches, winter's comin'! But as you stand in the autumn rain contemplating freeze-up, remember that spring melt will follow. Water, water everywhere, autumn rain and spring melt... and YOU have to make that road hold. Culverts are your primary tool, so before winter settles in, check each one: Is it working? Is it set to work next spring??

Even if you hate paperwork, make at least a file card for each culvert. Record its identification number, location, type, age, and description. Has any work been done on the culvert? Include that, since repair history can show that a problem exists even if it can't be seen.

Habits speed up the checkout. Use "R-WEB" (road, waterway, ends, and barrel) if it will help:

Road—Is there a change, like a sag, crack, or sideslope failure?

Waterway—Is the stream still lined up with the culvert, is it scouring or in-filling, or catching debris? Check high water marks and changes in drainage area; is the culvert adequately sized for the normal maximum flow?

Ends—Have they moved, settled, cracked? Has the stream undermined the ends, scoured into the streambed, or seeped along the outside, creating holes ("pipes") by removing soil?

Barrel—Check as best you can, but don't get swept away with the job! Has the shape changed? What about joints and seams? Rips and tears, pitting, cracking, spalling?

Take the opportunity to clear away brush as you size up the situation.

If something's going to fail before next summer's fix-it time, you'll be able to head off a bad situation.

Ref: FHWA Culvert Inspection Manual.♦

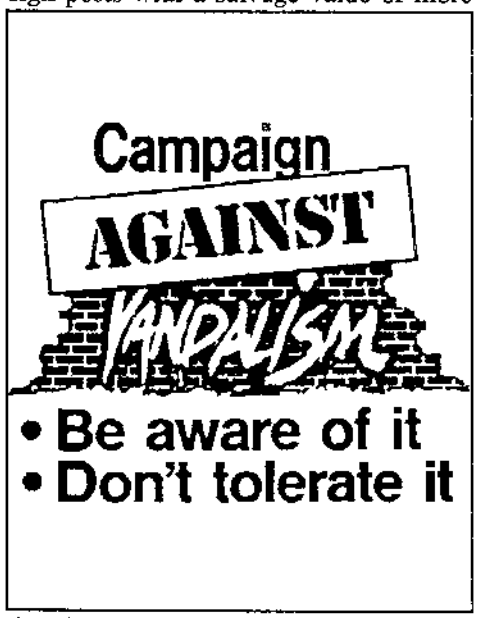
Highway Sign Vandalism
(continued from page 1)

Signs are stolen to become home decorations or because of some specialness of the legend. Wooden ones become firewood. Theft accounts for more than one-third of all sign vandalism. Neighborhoods around colleges are hard hit, as are recreational areas and campgrounds.

Transportation agencies are responsible for maintaining our signs. Installing one in the first place is not a duty unless the situation is unusual or dangerous; it's often a judgement call. The courts have ruled, though, that once a sign has been placed, a need has been implicitly established. Woe unto your budget if there's an accident because of a missing or unreadable sign, and liability is established.

That's the problem; so what's the solution? After all, it's hunting season, campaign time, and Halloween's coming. What can you do? Think of it this way: Humans are so clever that it can actually be fun to brainstorm how to outsmart them. Let's see if we can "prime the pump" of your group's creativity:

You could simply reduce the number of signs out there to be vandalized! Not all signs are necessary; remove the ones that aren't. Can some be combined on one post? Phoenix designed flexible signs that could be penetrated by climbers' spikes, and used utility poles as posts. They've removed 10,000 regular sign posts with a salvage value of more than $75,000!



You could change the signs themselves. Make them of heavier stock to foil "benders" or of cheaper stock that needs more frequent replacing anyway. There's an alloy of marble, glass fiber, and polymers that resist bending. Consider wood (away from campgrounds); gunshot plywood signs are more readable than gunshot aluminum ones.

You could protect the signs and reinforce them. Paint, crayons, and lipstick can be wiped off some transparent overlay films, and putting signs back-to-back or placing a horizontal metal piece behind the sign makes it tough to bend. Name signs disappearing? Instead of replacing "Blanche", try "Blanche St."; Michigan found that it worked.

Think about changing the sign supports. Use the same breakaway systems that are used for injury prevention; they're also a cost saver in high vandalism areas. Flexible supports have been developed and may be your answer. You could make the supports longer—still within MUTCD code, but the signs become harder to reach. Take advantage of human nature: consider moving the signs farther from the road and from turnouts. Even fastening them more securely to the posts helped in Texas.

You could make your signs more obviously owned. Usually, a potential room decorator can't tell who owns a sign because it has no identification marks, so they may not feel like it's a crime to take the sign. Stickers or imprints of ownership, penalties, rewards, inventory numbers, installation dates, and phone numbers not only deter would-be thieves, they're excellent evidence in the prosecution of possession of stolen property statutes. Plus you could try a "Highway Sign Amnesty Month"; Wisconsin did and got 2,500 signs back, most of them recyclable.

The police really can't be of much direct help, since sign vandalism is so hit-and-miss, but think about talking with them anyway. Their public relations efforts in the community and schools are a way to get across how serious the problem is—the increased accident potential and the dollar cost.

None of these suggestions, except the last, gets at the gunshot problem. Maybe you can think of something new, but the public education angle is potent. Brainstorm this one, too, because there are many ways you can go: press releases, your own brochures, etc. Would Fish & Game print a short, eye-catching message in their hunting regulations booklet? A continuing public information campaign would drum home the message better than a blitz. And time spent on that would be much more rewarding than all the head-shaking, teeth-grinding, and epithet-muttering we're prone to do!

Ref: FHWA Manual on Countermeasures for Sign Vandalism.♦

News & Views

Commercial Driver's License Update:

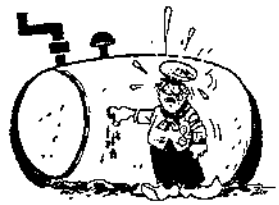
Study brochures are ready. You can get one from your nearest DMV office. Remember, if you drive a vehicle that carries more than 15 passengers, if you carry property on a land highway in a vehicle that has a gross weight rating greater than 26,000 pounds, or if you transport hazardous materials, you must have a CDL. The start date for the written and driving tests is still January 1991. **NOT EVERY DMV OFFICE WILL CONDUCT THE TESTING.** Check with yours. Since DMV has 15 months to test 15,000 drivers, they are asking that people come in during their birth month. Check the brochure for details.♦

Underground Storage Tanks Update:

Alaska House Bill 220 is law. DEC has hustled some interim regulations into place so they can work with underground storage tank (UST) owners and operators. Legislators put money into the new Storage Tank Assistance Fund, and the Board of Storage Tank Assistance has been appointed to help decide how the money is spent. You can contact Board members (call DEC for names) or comment at public meetings about draft regulations. Meetings will be advertised.

Tank tightness tests, site assessments, cleanups, upgrades, and closures—all expensive actions—will be eligible for grants or reimbursements. *All tanks must be registered with DEC by early March 1991.* You can blink at all this IF your UST is 1,100 gallons or less, storing marine, aviation, or motor fuel that's not for resale. USTs that store heating oil for on-site use are also exempt.

This law and its regulations created two employment niches: certified tank workers and "approved" consultants. Every consultant will have to have an approved Quality Assurance Project Plan. Starting one year after regulations are developed, every person who installs, tests, closes, repairs, or modifies tanks must be licensed by the Department of Commerce and Economic Development.♦



Why Worry About Leaks And Spills?

Lights, For Safety's Sake

Alaska is famous for it: darkness. Lights are one of our cars' most important safety systems. Just try to see that dark-as-night moose with one headlamp burned out.

We "talk" with our lights, too, telling other drivers where we are, what we're doing, or what we're going to do. If tail lights, brake lights, or turn signals don't shine or flash, that link is missing.

The average car has more than 70 different bulbs. With the help of a friend and this easy routine, we can perform a "lighting check-up" in minutes, which ought to be an every-other-month habit:

With the friend in front of the car, test

* parking lights
* turn signals
* headlights, low and high beam
* emergency flasher

Have the friend check the side running lights while walking to the rear of the car, then test

* tail lights *brake lights
* turn signals *emergency flasher

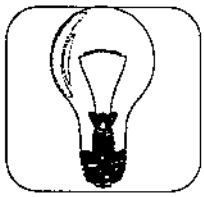
The inside lights are important, too. Check dashboard and dome, glove compartment and trunk. Think about fishing around for the jack handle during a snow storm—that's a real incentive.

When a head lamp needs replacing, consider halogen lights, even though they're 60% more expensive (unless they're on sale). "For the same wattage and life, you get 35 to 40 percent more light output with a halogen", says Wagner Lighting's Engineer Alex Campeanu. The brighter halogen light, when properly aimed, shines 200 feet farther down the road. At 55 mph, that gives us another 2 1/2 seconds to respond, a small but very important edge in an emergency.

Don't forget to regularly clean snow off all outside lights. They can easily be obscured with our frequent snowfalls.

Keep in mind that our lighting systems are vital to our safety; they help us see and be seen. Let's keep them working this winter.

Adapted from Kansas TRANS Reporter, May 1990.♦



Winter Prep Review

Here's a list of winter preparation and safety hints, which we're sure you'll find helpful.

Maintenance Planning

- ¤ Map snow removal routes.
- ¤ Train the crews, do trial runs.
- ¤ Inspect/repair equipment.
- ¤ Calibrate sanders.
- ¤ Store sand/chemicals.
- ¤ Perform daily maintenance.
- ¤ Do preventative maintenance every 100 hours.
- ¤ Develop emergency hire plans.

Vehicle Operation

- ¤ Slow down on icy roads.
- ¤ Clear all vehicle windows.
- ¤ Clean all vehicle lights.
- ¤ Check tires to ensure they have good tread.
- ¤ Keep tire pressure up as temperatures go down.
- ¤ Beware of "warm" ice, it's slippery.
- ¤ Squeeze brakes, don't pump them.
- ¤ Double your following distance.
- ¤ Ventilate the cab.
- ¤ Towing? Hook up when both drivers are out of the vehicles.
- ¤ Jumping batteries?
  - * Connect positive terminals.
  - * Clamp the negative terminal of the booster battery.
  - * Clamp other end to dead vehicle's engine.
  - * Start helper car, idle a few minutes.
  - * Start dead car.
  - * Disconnect in exact reverse order.
- ¤ Wear your safety belts.
- ¤ Stow emergency supplies: boots, parka, sleeping bag, matches, flares, food.

Have a safe and happy winter!♦

Technology for Alaskan Transportation **is a quarterly newsletter that informs local transportation people in government and industry of useful training materials and services. The newsletter reports on practical information, new technology, and learning opportunities such as workshops, seminars, publications and videotapes. To get on our mailing list, to receive any of our services, or to contribute to the newsletter, contact:**

Alaska Transportation
Technology Transfer Program
248 Duckering Building
Fairbanks, Alaska 99775-0660
(907)474-2481/7637

The Alaska Transportation Technology Transfer Program is a cooperative effort between the Alaska Department of Transportation and Public Facilities (DOT&PF) and the University of Alaska Fairbanks Institute of Northern Engineering. This program is funded by the Federal Highway Administration and the Alaska DOT&PF.

The following people are involved in the program:

- * **John D. Martin, P.E., Director**
- * **Sharon McLeod-Everette, SR/WA, DOT&PF Program Manager**
- * **Larry Johnson, UAF Program Manager**
- * **Susan Earp, Acting Training Coordinator/Technical Libraries**
- * **Charlotte Barker, Newsletter Editor**

NEW ADDRESS!

The Technology Transfer Program has a new address. Please make corrections to your rolodex. It is as follows:

Alaska Transportation
Technology Transfer Program
University of Alaska Fairbanks
248 **Duckering Building**
Fairbanks, Alaska 99775-0660

Please note: we have a temporary telephone number. Any changes will be announced in the next issue of our newsletter.

(907)474-2481

Calendar of Events

1990

October 12-13: Course 206, Presentation Skills. Sponsored by the International Right of Way Association, Arctic Trails Chapter 71. Contact Jean Harrison, (907)451-5201. **February 18-22, 1991: Course 101, Principle of Real Estate Acquisition: Law & Engineering.** Sponsored by the International Right of Way Association, Juneau Totem Chapter 59. Taught by Dan Beardsley. Contact Diane DeRoux, (907)364-4222.

October 22-24, 1990: Course 201, Communications in Real Estate Acquisition. October 25-26: Course 205, Bargaining Negotiations. Anchorage International Airport Inn. Sponsored by Internationl Right of Way Association Chapter 49. Taught by Dr. Jon Blubaugh. Contact Curtis Sutton, (907)561-5122.

- **November 1-2: 2nd Annual Right of Way Forum.** Fairbanks Carlson Center. Contact Susan Earp, (907)474-2481.

November 11-14, 1990: Organization for Economic Co-operation and Development. Orlando, Florida, USA. Seminar on Technology Transfer and Adaptability in Industrialized Nations. Sponsored by the Road Transport Research Program of the Organization for Economic Co-operation and Development (OECD). $200 registration fee. Contact University of Florida Transportation Research Center, (904)392-0378.

December 7, 1990: Timber Bridge Workshop. Anchorage Holiday Inn. Sponsored by the United States Forest Service, the University of Alaska Fairbanks Civil Engineering Department and the Cooperative Extension Service. Contact Tony Gasbarro, (907)474-6356.

Alaska Society of Civil Engineers
Anchorage: Every third Tuesday at noon at the Northern Lights Inn.
Fairbanks: Every third Friday at noon at the Captain Bartlett Inn.
Juneau: Every second Wednesday at noon at the Westmark-Juneau. This chapter does not meet June-August.

Alaska Society of Professional Engineers. *Fairbanks:* Every first Friday at noon at the Captain Bartlett Inn.

- **T2 Short Courses**

We will be happy to include any relevant events you would like to publicize. For more information about events in Alaska, Call Sharon McLeod-Everette at (907)474-2475, Larry Johnson at (907)474-7637, or Susan Earp at (907)474-2481.

ALASKA TRANSPORTATION
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Number 18, 1990

Dalton Ice Paving

by Jon Holland, Alaska DOT&PF Maintenance Foreman

Eighteen-wheelers headin' north—in Alaska that's the Dalton Highway, not the fabled Alcan. These two lanes of high-speed gravel road carry 18,000 trucks each year into and out of Alaska's arctic coastal plain. It was a tough road to build in a tough climate, and it can be just as tough to maintain. Miles of freeze-dried washboard would take a heavy toll if it weren't for "ice paving".

Benefits of Ice Paving

1. Durability
2. Low Maintenance
3. Economical
4. Reduce chemical treatments
5. Good riding surface

The road's north end is mainly river gravels without many fines. The plastic index (how much the road can stretch) is low. An almost-constant wind sweeps the road clean of any protective snow cake. The limited moisture, 15"-20" a year, and extended periods of -25 to -60 degrees F with low relative humidity suck the last drop of moisture out of anything not protected by snow cover. The Dalton becomes freeze-dried and brittle, more vulnerable to wind erosion in winter than in summer.

One way to stabilize the road surface without investing heavily in personnel or equipment costs is to water the road at subfreezing temperatures, locking the topping in place with an even, durable pavement of ice. It's not a new idea, but our experience on the Dalton may help you get the most dollar savings, good durability, and the best riding surface.

Like any building project, foundation work is critical. Start by getting the road into as good a condition as possible. One linear mile of gravel road 28 feet wide with a 5 per cent crown and in relatively good condition will require about 30,000 gallons of water to be capped properly. The same linear mile with an inverted crown and ruts will take 60,000 gallons or more to get the same effect. Ice is more durable and bonds better with a relatively smooth road.

The first water application should wet the surface material to a depth of 2 to 4 inches. This greatly increases the useful life of ice pavement because it provides a firm base and prevents loose gravel from breaking the surface from underneath. A stable base coat also helps the bonding with the next layer of ice. It's useful, but not absolutely necessary, that the first application of water be hauled while the air temperature is above zero degrees F.

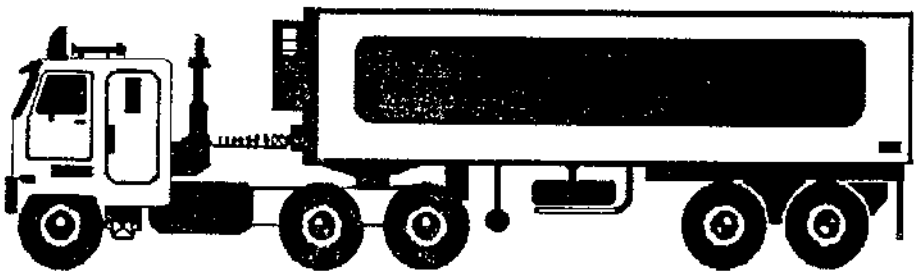
If you have to start when it's too cold for water to soak in those 2 to 4 inches, it's best to begin by hauling just enough water to fill the ruts and bumps. Let the traffic mix this ice veneer with the gravel for about a day, then return to finish capping the road. Actually, you may need to repeat the shallow wetting several times if the road's not in good shape, but the result will be a durable mix of ice and gravel.

Temperature and wind speed determine the water truck's rate of application; the colder and windier it gets, the slower the work. Operations at temperatures colder than -20 degrees F tend to be more troublesome than productive. In planning your work, remember that a breeze will bring your working material to air temperature much more quickly.

Next, if you have a source of dry D1, chips, or pea gravel available, spread it while it's dry and slurry it by dropping water onto it. This not only produces a sound base and excellent traction, it slows losses caused by evaporation.

An alternative method to get good traction is to drag snow or gravel from the shoulder or slope across the road. Gravel will work up under blade pressure and traffic load, providing good skid resistance. Steep hills and banked curves should never be iced. Be sure to post "ICY" signs at each end of the iced section.

An insulated vacuum tanker with integral pump is the ideal water transporter, but a standard uninsulated tanker and pump will work. Foam the restricted flow points and bring the



tanker inside every so often to thaw the buildup on inner walls and bulk heads. If you have an external pump, build a heated shack for it. You'll save time that would be lost thawing the pump and prevent possible damage to it.

Mount straigh- edged blades on graders and belly blades. They outlast scarifier edges and permit a good spread of detritus. The ratio of blading equipment to water equipment depends on the water trucks' turnaround times.

Lakes and ponds are reliable water sources, provided that they're deep enough not to freeze solid. Their ice surfaces are generally safe to drive on IF it's been cold long enough without an insulating snow cover. Rivers and streams are also good water sources, but moving water cuts channels on the underside of the ice, so be careful. The thickness in any given spot may vary considerably throughout the winter.

A properly built ice road can give you 12-16 weeks of maintenance-free service, even under a high volume of heavily loaded 18-wheelers and end dumps. It doubles the service life of chemical road treatments, such as calcium chloride, and saves tens of thousands of dollars of expensive topping material. Periodic thaws only seem to improve durability by improving surface wetting that rebinds the gravel. When the ice pavement finally does begin to wear through, it can be brought back to good condition with a few loads of water spread on the road's center, where overlapping wear occurs.

Icing gravel roads has a long and successful history in Alaska and Canada. It provides a smooth, safe, and durable running surface and saves valuable topping and chemical treatments ordinarily lost to wind erosion. Ice paving reduces the labor and equipment costs required to maintain a piece of road and produces the sort of superior product that sparks positive feedback from the motoring public.♦

APPLICATION

0 degrees F or warmer

1. Wet top 2"-4"
2. Spread D1
3. Wet D1 in place
4. If no D1, spread shoulder snow/gravel

below 0 degrees F

1. Fill ruts & bumps with water
2. Let traffic mix
3. Repeat 1 & 2 if necessary
4. Spread D1
5. Wet D1 in place
6. If no D1, spread shoulder snow/gravel

below -20 degrees F

1. Stay home

For More Information

For back issues of our newsletters and notes, or to get on our mailing list, write: Publications, Transportation Technology Transfer Program, University of Alaska Fairbanks, 233 Duckering Building, Fairbanks, AK 99775-0660. For more information, you can also call (907) 474-7733.

Scrambled Disks and Fried Drives

by Billy Connor

Number 10, 1990

To date, we've discussed using directories and subdirectories to organize your files, creating batch files to speed your work and backing up your hard drive. In this article, I will discuss how to use color when you're at the DOS level and will introduce you to a CONFIG.SYS file.

ADDING COLOR TO YOUR LIFE

Like many of you, I have a color monitor on my computer, which sure beats the old monochrome monitor. If you are like me, you feel it's ridiculous to look at a white DOS prompt on a black background when color can give a much better contrast. DOS has a very useful but poorly documented **PROMPT** command. The prompt command allows you to define the type prompt, set the colors of the screen, and even redefine keys. I'm going to concentrate on defining the prompt and setting colors on the screen. The simple prompt command is:

prompt pg

Parameter	*Description*
8	Invisible (black-on-black) display
30	Foreground black
31	Foreground red
32	Foreground green
33	Foreground yellow
34	Foreground blue
35	Foreground magenta
36	Foreground cyan
37	Foreground white
40	Background black
41	Background red
42	Background green
43	Background yellow
44	Background blue
45	Background magenta
46	Background cyan
47	Background white

Table 1: Parameters and Descriptions

This causes the computer to display the current directory as the prompt, e.g. C:> or C:\WORDPROC>. That way you know exactly where you are. If you have a color monitor, you can cause the computer to print the prompt and text in the colors of your choice, listed in Table 1. You probably won't find it in your DOS manual, so here is a good reason to keep this insert.

An example of a prompt command is:

prompt $e[34;40;1m;$pge[36;40;1m

The characters "$e[34;40;1m;$p$g" set the prompt text color to blue (34) and the prompt background to black (40). As before, the prompt will display the default drive and directory. The last string of characters "$e[36;40;1m" sets the displayed text to cyan (36) on a black background (40). You can play around with the colors to find what combination you like best. You can even change it when your mood changes.

However, this application of the prompt requires you to add the following line to your **CONFIG.SYS** file in the root directory:

device=c:\dos\ansi.sys

If you don't have a config.sys file, you will need to create one the same way you create your batch files. If you have your DOS file in something other than the C:\DOS directory, you will need to modify the line to reflect that. If you wish to use this prompt command, I suggest you add it to your autoexec.bat file.

CONFIG.SYS FILE

While we're on the subject of configuring your computer to your needs, let's discuss the CONFIG.SYS file. When you turn on your computer, it goes through a sequence of self checking and loading a series of files that gives the computer its personality. Just before executing the AUTOEXEC.BAT file, IBM machines look for the CONFIG.SYS file, which configures the machine to your needs. Some of the custom features you may select are:

* how many buffers will be used
* how many files can be open at one time
* what equipment is in your computer

The setup is usually done with three commands: **BUFFERS=**, **FILES=**, and **DEVICE=**.

Let's look briefly at each. **BUFFERS=** lets you set the number of buffers you need. The computer uses the buffer to store information when it is reading or writing to a disk. The number of buffers is extremely important for the efficiency of your computer. Selecting too few buffers will cause the computer to access the disk too often. This slows things

down. However, since each buffer uses 512 bytes of memory, selecting too many buffers may not leave enough memory to run your application.

Let's look at how the computer uses the BUFFER= command. Think of buffers like pieces of paper lying on the surface of your desk. Remember, the disk is like a file room. The first time you need any information, you get up from your desk and get a piece of paper from a file. Now you need another piece of paper, but you're not ready to put the old one away. You lay the paper on the desk and get the next one. If you continue to get more sheets of paper without putting the old ones away, your desk will soon be so full you can't do any work. Most software suggests you use 20 buffers.

FILES= is very similar to the **BUFFERS=** command except that it limits the number of files that can be open at one time. Think of this as company policy. The primary reason for the policy is to avoid having too many files on your desk at the same time. Most software recommends 15 files.

The **DEVICE=** command is a bit more difficult to understand. This command sets the device driver to be used. A device driver is simply a program that drives any peripheral devices you may have in or attached to your computer. These might include a mouse, a special monitor, a special disk drive, or a printer. You have already seen ANSI.SYS driver, which extends the video capabilities of DOS. If you have the command **DEVICE=ANSI.SYS** in your CONFIG.SYS file, each time you boot (start) your computer, it will read the CONFIG.SYS file and load the ANSI.SYS driver. Another example is the mouse driver shipped with your mouse. If you want the computer to load the mouse driver each time you boot your system add the command **DEVICE=MOUSE.SYS** to your CONFIG.SYS file.

Hint: The discussion above assumes the driver, e.g. MOUSE.SYS, is in the root directory. If you put it in a subdirectory, make sure you include the path in the filename. For example, if MOUSE.SYS is in the MOUSE subdirectory, the command would be

DEVICE=C:\MOUSE\MOUSE.SYS.

SUMMARY

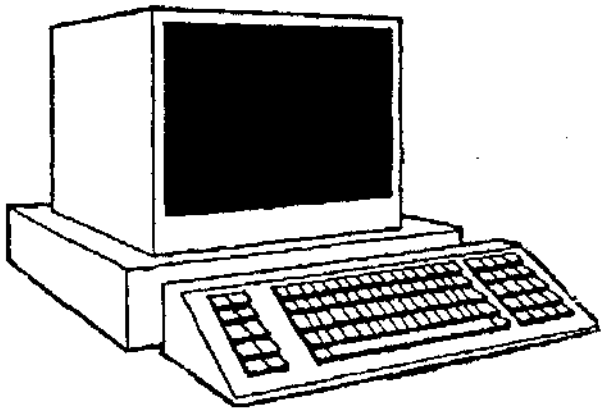
To date we have discussed batch files, which execute programs, the CONFIG.SYS file, which customizes the computer, and the AUTOEXEC.BAT file, which executes a series of commands when you turn the computer on. The CONFIG.SYS file customizes your computer to your specifications. The AUTOEXEC.BAT file executes a series of instructions when you turn it on. The batch files that execute program save you from typing the same keystroke over and over. Each of these saves time and allows you to take advantage of your machine's capabilities.

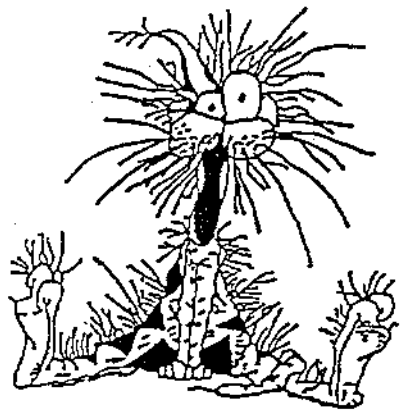
NEXT TIME

The next SCRAMBLED DISKS AND FRIED DRIVES will discuss disk drives and how to make them work more efficiently.

QUESTIONS

If you have questions about computers, drop us a line. We will make every effort to answer them. If the question is of common interest, the answer will be printed in the newsletter. We also appreciate any ideas you have to share. Again, if they are of general interest, we will print them and give you credit.♦





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Washington State Transportation Conference

by Bruce E. Wells, Statewide Transit Coordinator

Number 6, 1990

During the first week of September, transit organizations throughout Alaska participated in the Washington State Transportation Conference. RTAP scholarships covering transportation, registration, accomodations and meals were given to organizations from Ketchikan to Barrow. Fourteen organizations participated in the week-long conference.

Highlights of the conference included a bus and van rodeo in which drivers tested their skills by competing in a number of maneuvers. Daryl Ryder of Kotzebue carried the Alaskan banner in the van portion, scoring well in the competition that included several national champions. Five Alaskans participated as judges in the events.

On the second day, pending impacts of the "Americans with Disabilities Act" (ADA) were discussed. It was apparent that fiscal impacts from this program will greatly change transit in Alaska, possibly resulting in closure of some of our systems due to the tremendous financial burden.

Wednesday afternoon consisted of a luncheon followed by a vendor display of numerous buses and vans. Many were equipped with a variety of wheelchair lifts. This was the first time many of Alaska's smaller transit companies had seen different vehicles for comparison. Mark Wuitschick, Copper River Native Association, was able to videotape and operate several hydraulic lifts. His organization plans to obtain a lift in the coming year.

In all, there were 25 separate workshops to select from, with Friday free for association meetings, when the Alaska delegation gathered to discuss issues. The consensus was that due to the extent of pending legislation, an Alaska Transit Association should be formed. Elections followed with Max Lyon Jr., Fairbanks Metropolitan Area Commuter System (MACS), elected President; Ron Nason, Alaska Intercity Lines, Vice President; and Chris Aubertine, Ketchikan Gateway Borough, Secretary. Their plans are to have the first meeting in Anchorage around November.

The next topic was Alaska's UMTA-RTAP program. An advisory committee was established consisting of the following members:

***John Houston**, North Slope Borough Transit*
***John Kern**, Capital Transit*
***Ron Nason**, Alaska Intercity Lines*
***Max Lyon Jr.**, MACS*
***Bill Crandall**, Access Alaska*
***Michael Slezak**, Wasilla Area Seniors Inc.*
***Noel C. Matteson**, Chugiak Senior Citizens, Inc.*
***Mark Wuitschick**, Copper River Native Association*

The Advisory Board will make recommendations and monitor disbursement of UMTA-RTAP funds. Recommendations from the Friday meeting include: quarterly expenditure report; funding the Passenger Assistance Techniques (PAT) program; drug training; establishment of a peer review program; purchasing a commercial drivers license training program (see News & Views); advisory board budget; reduced library support; reduced technical assistance support; and an ADA Workshop in Anchorage in November/December to develop required transit plans.

Attending the conference were: Michael Slezak, Chris Aubertine, Max Lyon, Daryl Ryder, John Bevis, Ron Nason, Noel C. Matteson, Carol Collins, Lillian Wilder, Bill Crandall, John Houston, Steven L. Parker, Mark Wuitschick, and Rich Cline.

PAT

There is a new RTAP program gaining popularity across Alaska. It is called "PAT", which is short for Passenger Assistance Techniques. This training has been recognized nationwide as the leader in instructing proper techniques for assisting both the elderly and the impaired. Close to 20,000 people have been certified nationwide under this program.

Although the training is intended for operators of systems transporting the elderly and handicapped, approximately 30 prison guards have also attended an abbreviated course. Certification requires approximately 8 hours of instruction. The training consists of lectures, slide presentations, and hands-on experience with wheelchairs, lifts, ramps, stairs, etc., and is offered at no charge.

It is the intent of the program to help accomplish the following:

- Reduce the likelihood of possible injury to an elderly or handicapped person.
- Prevent driver injuries.
- Reduce a system's exposure to liability suits.
- Reduce insurance premiums.
- Improve system efficiency by speeding up loading and unloading processes.
- Reduce scheduling difficulties, since all drivers will be capable of assisting any passenger in a system.
- Increase user confidence in the system.

Alaska has 6 certified instructors. Classes have been held in Anchorage, Fairbanks, Juneau and Soldotna. A total of 120 people have been certified to date.

Courses are being scheduled for Tok, Kodiak, Juneau and Anchorage. If you are interested in learning more about the training, or are interested in sponsoring a class, contact Mr. Bruce E. Wells at (907)465-2171.

Urban Mass Transportation Administration

UMTA RTAP Notes

Basic Principles of Passenger Assistance

The Passenger Assistance Techniques training class conducted recently in Fairbanks provided drivers and supervisors with the skills necessary to safely assist passengers with mobility impairments. Here are the key principles.

The Basics Of Wheelchair Management

wear comfortable non-slip shoes
always check the handgrips before moving the chair
always position yourself on the downhill side of the chair
when negotiating a curb, go UP the curb FORWARD, and come DOWN the curb BACKWARD
always treat a wheelchair as if it had no brakes
never lift the chair by its arms or wheels
never leave the passenger unattended without the brakes on, or without your hand on the chair
always use wheelchair tiedowns and passenger safety restraints

The Basics Of Transporting Mobility Impaired Persons

Persons with visual impairments

stay one-half pace ahead while escorting
warn in advance of any terrain changes
tell direction and distance of movement (up, down, 4")
drop lead arm back when escorting through a narrow area
use stop command automatically
use vehicle orientation points:
door - door sill - seat

Persons with muscle control impairments

make eye contact
seat to avoid injury to self and others
ask how to help
ask to repeat if necessary

Persons with speech impairments

do not pretend to understand if you don't
repeat what you heard said
ask passenger to repeat part not understood
carry paper and pencil

Persons with hearing impairments

speak clearly - face the passenger
use normal lip movements, speech and speed
lower voice pitch slightly; use gestures, normal volume
keep message simple; repeat as necessary
carry paper and pencil

Persons with mental impairments

use simple and direct communication; repeat as necessary
be consistent; follow established routine
be patient; be firm; praise good behavior
use normal voice tones; talk at equal level
learn nature of impairment and passenger abilities
be alert to dangerous situations

All Mobility Problems Or Impairments

Remember, we have all at times:

- been confused
- had problems with directions
- had difficulty adjusting
- been agitated, irritated, excited

To assist:

use proper techniques
have patience
show respect . . . compassion . . . empathy

Based on Idaho UMTA RTAP Update, Summer 1990.♦

For More Information

For back issues of our UMTA RTAP notes, or to get on our mailing list, write: Publications, Transportation Technology Transfer Program, University of Alaska Fairbanks, 233 Duckering Building, Fairbanks, Alaska 99775-0660. For further information contact (907) 474-2475.

NEW PUBLICATIONS AVAILABLE FOR LOAN

Number 21, 1990

Place a check by the publications you wish to receive.
Last=624

____ **Computer Controlled Traffic Signal Systems**, ID-599, USDOT/FHWA-IP-82-21, December 1982, 200pp.

____ **Digest of Information on Super Water Reducers**, ID-609, Experimental Projects Program, Technology Transfer, FHWA, September 1984, 21pp.

____ **Equipment Management System Workshop**, ID-600.

____ **Freeway Management Handbook, Vol 1: Overview**, ID-597A, USDOT/FHWA, May 1983, 86pp.

____ **Freeway Management Handbook, Vol 2: Planning and Design**, ID-597B, USDOT/FHWA, May 1983, 222pp.

____ **Freeway Management Handbook, Vol 3: Operations and Management**, ID-597C, USDOT/FHWA, May 1983, 264pp.

____ **Freeway Management Handbook, Vol 4: Annotated Bibliography**, ID-597D, USDOT/FHWA, May 1983, 213pp.

____ **Guide for Highway Landscaping and Environmental Design**, ID-602, AASHTO, June 30, 1970, 84pp.

____ **High Occupancy Vehicle Facility Development: Operation and Enforcement**, ID-598, USDOT/FHWA-IP-82-1, Volume II, April 1982, 113pp.

____ **Highway Route Designation Criteria For Bicycle Routes: Handbook**, ID-601, USDOT/FHWA-IP-86-12, August 1986, 65pp.

____ **KUTC Newsletter: Bridge Maintenance and Management Issue**, ID-606, Kansas Transportation Center, Vol 10, No. 2, May 1988, 20pp.

____ **Louisiana Transportation Research Center Notebook**, ID-610, 1988. Six articles to accompany video tapes in our library.

- ____ **Reshaping Earth and Gravel Shoulders**
- ____ **Replenishing Earth and Gravel Shoulders**
- ____ **Mechanical Cleaning of Unlined Ditches**
- ____ **Cleaning of Lined Ditches, Culverts, and Catch Basins**
- ____ **Cleaning and Clearing of Bridges**
- ____ **Concrete Bridge Deck Repair**

____ **Manual of Traffic Signal Design**, ID-596, Institute of Transportation Engineers, 1982, 259pp.

____ **National Experimental and Evaluation Program "NEEP" Final Report**, ID-608, Experimental Projects Program, Technology Transfer, FHWA, September 1984, 19pp.

____ **Private Sector Contracting for Transit Services:Operator Handbook**, ID-594U, USDOT/UMTA, October 1987.

____ **Research Proposal to RTAP/FHWA: Alaska T2**, ID-603, University of Alaska Fairbanks T2, April 1985, 43pp.

____ **Taxi-Based Paratransit Technology/Operations Packages in Europe**, ID-591U, UMTA/DOT-I-86-11, May 1985, 114pp.

____ **Traffic Detector Handbook**, ID-593, USDOT/FHWA-IP-85-1, April 1985, 318pp.

____ **Transit Marketing Management Market Research**, ID-605U,USDOT/UMTA, March 1988, 52pp.

____ **Unsubsidized Transit Services:Potential to Meet Public Needs and Reduce Subsidy Requirements**, ID-592U, UMTA, December 1985, 318pp.

____ **Use of Contracting by Public Transit Agencies in California**, ID-595, USDOT/CALTRANS, September 1986, 73pp.

____ **VTI Topics,** National Swedish Road and Traffic Research Institute (VTI)

____ **Working Environment of Bus Drivers**, ID-604A, Vol 1, No. 2, June 1982

____ **Mixing Plant**, ID-604B, Vol 1, No. 3-4, December 1982

____ **Fiber Fabric**, ID-604C, Vol 2, No. 1, April 1983

____ **Accident Picture**, ID-604D, Vol 2, No. 2, October 1983

____ **The VTI Road Surface Tester**, ID-604E, Vol 2, No. 3, November 1983

____ **Motorcycle Accident Research at VTI**, ID-604F, Vol 2, No. 4, November 1983

____ **Infant Restraint Systems Tests**, ID-604G, Vol 3, No. 1, January 1984

____ **Laser Road Surface Tester**, ID-604H, Vol 3, No. 2, March 1984

____ **Erosion in Road Slopes**, ID-604I, Vol 3, No. 6, November 1984

____ **Unsalted Roads**, ID-604J, Vol 4, No. 1, January 1985

____ **Highway De-icing**, ID-604K, Vol 4, No. 2, March 1985

____ **Testing Cement Grouted Macadam**, ID-604L, Vol 6, No. 2, July 1987

____ **Gravel Road During Spring Thaw**, ID-604M, Vol 6, No. 4, December 1987

____ **When To Pave A Gravel Road: Helping Hand Guide** #2, ID-607, Kentucky Transportation Center, April 1988, 12pp.

These publications may be borrowed for two weeks. If you wish to receive a copy of any of the above publications to keep, please contact *Susan Earp* at the Alaska Technology Transfer Program at *474-2481 to see if it can be obtained or if duplication is possible.*

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University of Alaska Fairbanks
248 Duckering Building
Fairbanks, AK 99775-0660

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NEW VIDEOS AVAILABLE FOR LOAN

Number 21, 1990

Place a check by the videotapes you wish to receive.
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____ **Basic Operators Orientation Draining (BOOT)**, ID-132, 30min, Tennessee DOT, 1988. Publication: Instructors Manual included.

____ **Inspection of Concrete Bridges**, ID-137, 30min, 30min, RTAP/Montana.

____ **Inspection of Pin and Link Details - Bridge Structures**, ID-134, 30min, RTAP/Montana.

____ **Inspection of Steel Truss Bridges**, ID-136, 30min, RTAP/Montana.

____ **Inspection of Wood Bridges**, ID-135, 30min, Oregon.

____ **Introduction to Bridge Inspection**, ID-133, 30min, RTAP/Montana.

____ **LP Gas, Know The Facts**, ID-127, USDOT/FHWA, What is LP gas and how to handle it safely facts. January 29, 90, 11min.

____ **Pavement Management Systems for Local Administrators**, ID-130, 17:15min, DOT/FHWA, Arizona State University, 1990.

____ **STARTS Training Program**, ID-131U, 45min, UMTA/USDOT, July 1988. Includes 1) Vehicle Inspection, 2) Driving Safety, and 3) Passenger Relations. To be used with STARTS: Driver Training Program (Publication ID-765U).

____ **Without Due Process**, ID-128, 7min, PennDOT and PENELEC, August 1986. Raised Truck Beds, Stockpiling, Cranes, and the danger of electrical lines.

____ **Your Rights and Benefits As A Displacee**, ID-129, 10min, Virginia DOT, 1990.

VIDEOS PERTAINING TO NEWSLETTER ARTICLES

____ **The Importance of Roadway Drainage**, ID-27, 50min, Transportation Information Exchange. A lecture style training tape emphasizes the importance of good roadway drainage, and stresses the need for a proper inventory of culverts, drainage areas, and problem areas.

____ **Maintain Drainage**, ID-33, 12min, Utah DOT. Discusses the importance of maintaining drainage, and steps to be taken by workers when maintaining culverts, drop inlets, and catch basins.

____ **Planning and Organizing Winter Operations**, ID-82, 12min, Penn DOT. Describes preparations for winter operations, ordering parts and materials, stock piles, checking drainage areas, rental agreements, snow plowing map, and crew and staff meetings.

____ **Understanding the Capabilities and Needs of Special Passengers**, ID-111U, 65min, Kentucky University Transportation Center.

PUBLICATIONS PERTAINING TO NEWSLETTER ARTICLES

____ **Bridges and Culverts**, ID-311, Transportation Research Record 903, 1983, 114pp.

____ **Concrete Culverts and Conduits**, ID-560, Portland Cement Association, 73pp.

____ **Hydraulic Design of Highway Culverts**, ID-76, FHWA-IP-85-15, September 1985, 253pp.

____ **Manual on Countermeasures for Sign Vandalism**, ID-92, FHWA-IP-86, 1986, 158pp.

____ **Musts for USTs**, ID-717, US EPA, Office of Underground Storage Tanks, EPA/530/UST-88/008, September 1988, 40pp.

____ **Structural Design Manual for Improved Inlets and Culverts**, ID-363, FHWA-IP-83-6, June 1983, 338pp.

These videos/publications may be borrowed for two weeks. If you wish to receive a copy of any of the above videos please contact *Susan Earp* at the Alaska Transportation Technology Transfer Program at *(907)474-2481* to see if it can be obtained or if duplication is possible.

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1990 RTAP CONFERENCE
NETWORKING THE '90s

The Alaska Transportation Technology Transfer (T2) Program hosted a resoundingly successful annual Rural Technical Assistance Program (RTAP) meeting at the University of Alaska Fairbanks August 5-9. T2 Programs are the largest effort of RTAP, which was established by Congress in 1982 to provide rural technical assistance to the transportation industry. T2 is a nationwide endeavor financed jointly by the Federal Highway Administration (FHWA) and individual state departments of transportation.

The annual meeting is the primary opportunity for the 46 T2 centers from around the U.S. and Puerto Rico to exchange information among themselves as well as to hear from national transportation workers. This year's theme, Networking the '90s, is a variant on the national T2 motto, "Work smarter, not harder." The conference emphasized the importance of

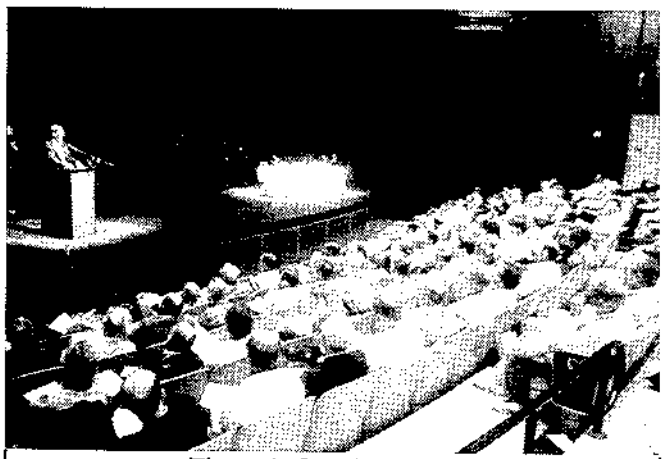

Figure 1: Opening Session

T2 centers working together and with other transportation agencies to strengthen the U.S. rural transportation system. By both formal means, such as newsletters and regional meetings, and informal exchange, T2 centers have been highly successful in delivering state-of-the-art technology at minimal cost to rural transportation officials across the U.S.

RTAP CONFERENCE ISSUES

Conference sessions covered both administrative and technical issues, and internal (among T2 centers) and external relations. Invited agency speakers discussed future national transportation policies, safety programs, research and development in transportation, and concerns of other transportation agencies. T2 Center speakers presented suggestions on ways to improve T2 program administration, methods for inter-center cooperation, newsletter production, and course development. Other presenters from T2 centers talked about technical developments relating to T2, including pavement recycling, environmental auditing, timber bridges, commercial driver's licensing, (CDLs), geosynthetics, and microcomputers.

We had an Alaskan specialty, a field trip covering permafrost mitigation techniques for roads, pipelines, and structures. Participants also heard that the T2 success has sparked interest in developing similar programs in Canada, Europe, and Latin America!

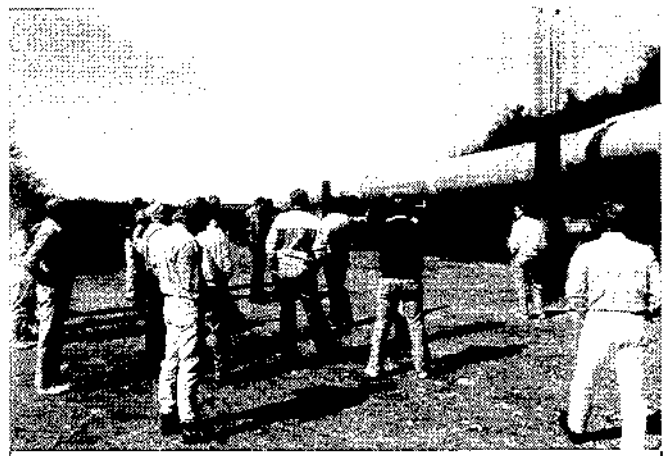

Figure 2. Field Trip

NATIONAL SPEAKERS, TOPICS

The keynote address, "Networking Safely in the '90s", provided by **E. Dean Carlson**, FHWA Executive Director, concentrated on the future of technology transfer, safety as a primary concern, and public awareness of the services that transportation workers provide for the public. **Robert J. Reilly**, Transportation Research Board (TRB) Cooperative Research Program Division Director, represented TRB's National Cooperative Highway Research Program and the American Association of State and Transportation Officials. The two main thrusts of his talks dealt with expanding research and development to meet the needs of the nation's aging transportation infrastructure and with translating the results into use via technology transfer programs.

HERE ARE SOME HIGHLIGHTS OF THE CONFERENCE:

1. Timber bridges are experiencing a resurgence because they often provide cost savings. Timber has many advantages as a bridge building material. In many states it is a local renewable resource; it is aesthetically pleasing, can be constructed in any season and can be prefabricated, isn't damaged by freeze and thaw, is resistant to the effects of deicers, has lower maintenance costs, is light weight (construction is easier because smaller construction

equipment is used), and can be constructed by local labor.

2. Environmental auditing can save transportation workers and property managers time, expense, and extreme liability by avoiding properties that are contaminated with hazardous substances, or by applying mitigating techniques to already-owned contaminated property.
3. Sessions on T2 administration featured methods of setting up management structures; how to publish attractive and informative newsletters and publications efficiently and cost-effectively; and development of technology transfer courses that meet each state's individual transportation industry needs.
4. There is a national effort to provide programs concentrating on work zone safety. The programs increase public awareness of transportation workers in construction zones and transportation workers awareness of on-the-job safety. The intent is to reduce the number of injuries and deaths caused by inattentive and uninformed drivers and workers.
5. Because the RTAP has been so successful, FHWA is formulating an Urban Technical Assistance Program based on RTAP.

FIRST NATIONAL T2 NEWSLETTER AWARD

The Northwest T2 Center, based in Olympia, Washington, won the first annual T2 Newsletter Award with their "Northwest Technology Transfer Bulletin", edited by George Crommes and published by Washington State Department of Transportation. Congratulations to the Northwest T2 Center and George.

SPECIAL RECOGNITION

The Alaska T2 Program received special recognition in the form of a unanimous resolution from the RTAP T2 Directors for the best conference in RTAP's history. 154 participants and guests from all across the nation, including Canada and Puerto Rico, attended the 5 day event. In addition to the daily conference agenda, attendees enjoyed an optional program of local evening events with a historical bent.